REMARKS

The present Response is intended to be fully responsive to all points of objections and/or rejections raised by the Examiner and is believed to place the application in condition for allowance. Applicants assert that the present invention is new, non-obvious and useful. Prompt reconsideration and allowance of the claims are respectfully requested.

Status of the Claims

Claims 10-16 are currently pending.

Claims 1-9 have been cancelled.

Summary of Examiner Interview

Applicants would like to thank Examiner Joel Horning and Supervisor Michael Cleveland for granting a telephonic interview with Applicants' representative, Yuanmin Cai (Reg. # 56513), on September 9, 2010 to discuss pending claims of the application. Applicants presented argument that even the combination of prior art Yau and Jersch, should they be combinable, would still be in deficiency of teaching using the AFM probe tip intensified electromagnetic near-field to decompose a CVD vapour, as in claim 10.

During the interview, it was agreed that if Applicants can show that the intensified electromagnetic near-field is NOT merely an intensified laser beam focused by the AFM probe tip in a way that is similar to a lens focusing a laser beam, then Applicants' above argument will be considered as persuasive.

Applicants assert, as detailed in below remarks, that the AFM probe tip intensified electromagnetic near-field is produced through a surface Plasmon resonance rather than through a beam focusing mechanism (via diffraction or reflection) as a lens would do.

Remarks to Claim Rejections

Claim Rejections - 35 USC §103

The July 12, 2010 Final Office Action continues to reject claims 10-15 as being unpatentable under 35 U.S.C. §103(a) over Yau et al. (Applied Physics Letters 57 (1990), No 27, pp.2913-2915, "Yau") in view of Asahino et al. (Physical Review Letters 86 (2001) No 19, pp.4334-4337, "Asahino") and further in view of Jersch et al. (Applied Physics A 64 (1997) pp. 29-32, "Jersch").

Applicants respectfully disagree.

Applicants respectfully submit that independent claim 10 of present application includes distinctive features and elements that are not taught, suggested, or even implied by prior art references of record. For example, Yau, Asahino, and Jersch, alone or in combination, does not teach, suggest, or imply using an AFM tip to produce an intensified electromagnetic near-field "to such an extent that the vapour is decomposed", and does not teach, suggest, or imply that intensity of the light beam "is not enough to decompose the vapour".

The Office Action admits that Yau does not teach using the probe tip to intensify the laser beam, but contends that Jersch describes using the FOLANT technique to focus the laser to a higher intensity at the tip of the probe, and it would have been obvious to combine Jersch with Yau (to arrive at the above distinct feature of claim 10).

Applicants respectfully disagree.

Without admitting any appropriateness in combining Yau with Jersch, Applicants would like to respectfully point out that the combination of Yau and Jersch would still be in deficiency in teaching decomposing the vapour (suitable for CVD) by the intensified electromagnetic near-field, which is specifically recited in claim 10 of present invention. To the most, Jersch describes using the FOLANT technique to achieve nanomodification on conductive surface (page 29, introduction section), and to soften substrate. However, neither Jersch nor Yau teaches, suggests, or even remotely implies using the FOLANT

technique to decompose any vapour, in particular a CVD suitable vapour, through a tip intensified electromagnetic near-field. Jersch and Yau do not even mention that the FOLANT technique may be used for that purpose.

The AFM tip intensified electromagnetic near-field is produced through a surface plasmon resonance (last line of page 2, present application), which refers to excitation of surface plasmons by light as is known in the art. Surface plasmons, also known as surface plasmon polaritons, are surface electromagnetic waves that propagate in a direction parallel to the metal/air (or metal/dielectric) interface. Clearly, the tip intensified electromagnetic near-field is produced in a way that is entirely different from merely focusing a laser beam through diffraction and/or reflection like an optical lens normally does. Furthermore, by aligning the polarization of laser beam parallel to the tip axis, the tip intensified electromagnetic near-field, through plasmon resonance, maybe 3000 times stronger than the illuminating intensity of the laser beam (last paragraph, page 7 – first paragraph, page 8 of present application).

Applicants respectfully submit that even though Yau may describe decomposing a vapour of trimethylaluminum (TMA) by a focused laser beam, as being alleged by the Office Action, Yau does not teach, suggest, or even imply decomposing the TMA vapour with an AFM tip intensified electromagnetic near-field (which may be produced through surface plasmon resonance). Nor Jersch suggests the same. Neither Yau nor Jersch even remotely suggest that an AFM tip intensified electromagnetic near-field may be used in decomposing the TMA vapour.

The Office Action contends that in some places light intensity taught by Yau will not be great enough to decompose the TMA vapour. Applicants respectfully disagree and would like to point out that Yau neither explicitly nor implicitly teach the above as a feature throughout the entire reference. To the most, Yau is silent about this requirement which is specifically required by claim 10 of present invention.

Regardless, Applicants would like to point out that Yau, to the contrary, describes specifically that a lens is used to focus the laser beam at the probe tip to a desired intensity so that the TMA decomposes (instead of not decompose) into ions. The above is

clearly admitted by the Office Action as well at page 3, first paragraph and contracts directly to what is specifically required by claim 10 that the intensity of light beam is not enough to decompose the vapour. In other words, Yau clearly teaches away from the distinct feature of claim 10 of the present invention.

In view of the above, it is respectfully submitted that claim 10 is not obvious over prior art references of record, alone or in combinations, and is patentable.

Claims 11-15 depend from independent claim 10 and include all the distinctive features of claim 10, in addition to other distinguishing features and elements. Claims 11-15 are patentable at least for the same reasons as discussed above with regard to claim 10.

The July 12, 2010 Final Office Action continues to reject claim 16 as being unpatentable under 35 U.S.C. §103(a) over Yau, in view of Asahino, Jersch, and further in view of Takahashi et al. (Ultramicroscopy 82 (2000), pp. 63-68, "Takahashi").

Applicants respectfully disagree.

Claim 16 depends from claim 10 and includes all the distinct elements of claim 10 as described above, as well as other distinctive features and/or elements. Thus, claim 16 is patentable at least for the same reasons as discussed above with regard to claim 10.

In view of above remarks, Applicants respectfully request that rejections of claims 10-16 made under 35 U.S.C. §103(a) be withdrawn.

Conclusion

In view of the preceding remarks, Applicants respectfully submit that all pending claims are now in condition for allowance. Favorable reconsideration and allowance of the claims are respectfully requested.

No fees are believed to be due in connection with this paper. However, if there is any such fee due, please charge any such fee to the deposit account No. 09-0458.

Respectfully submitted,

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